

## APPENDIX "C"

### Test Methods and Compliance Procedures:

#### Alternative Compliance Methods for Surface Coating.

- a. Daily-weighted average. The daily-weighted average VOC content, in units of mass of VOC per unit volume of coating, excluding water and exempt compounds, as applied, of the coatings used on a day on a coating unit, line, or operation shall be calculated using the following equation:

$$VOC_w = \frac{\sum_{i=1}^n V_i C_i}{V_T}$$

where:

- $VOC_w$  = The daily-weighted average VOC content of the coatings, as applied, used on a coating unit, line, or operation in units of kilograms of VOC per liter of coating (kg VOC/L) (pounds of VOC per gallon of coating [lb VOC/gal]), excluding water and exempt compounds.
- $n$  = The number of different coatings, as applied, each day on a coating unit, line, or operation.
- $V_i$  = The volume of each coating, as applied, each day on a coating unit, line, or operation in units of L (gal), excluding water and exempt compounds.
- $C_i$  = The VOC content of each coating, as applied, each day on a coating unit, line, or operation in units of kg VOC/L of coating (lb VOC/gal), excluding water and exempt compounds.
- $V_T$  = The total volume of all coating, as applied, each day on a coating unit, line, or operation in units of L (gal), excluding water and exempt compounds.

- b. [Reserved]

- c. Overall emission reduction efficiency for control systems. The overall emission reduction efficiency needed to demonstrate compliance is determined each day as follows:

1. Obtain the emission limitation from the applicable Section of this regulation.
2. Calculate the emission limitation on a solids basis according to the following equation:

$$S = \frac{C}{1 - \left( \frac{C}{d} \right)}$$

where:

- S = The VOC emission limitation in terms of kg VOC/L of coating solids (lb VOC/gal).  
 C = The VOC emission limitation in terms of kg VOC/L of coating (lb/gal), excluding water and exempt compounds.  
 d = The density of VOC for converting emission limitation to a solids basis. The density equals 0.882 kg/L (7.36 lb/gal).

3. Calculate the required overall emission reduction efficiency of the control system for the day according to the following equation:

$$E = \left[ \frac{(VOC_a - S)}{VOC_a} \right] \times 100$$

where:

- E = The required overall emission reduction efficiency of the control system for the day.  
 VOC<sub>a</sub> = (1) The maximum VOC content of the coatings, as applied, used each day on the subject coating unit, line, or operation, in units of kg VOC/L of coating solids (lb VOC/gal), as determined by the applicable test methods and procedures specified in **Appendix "B"** of this regulation. (2) Alternatively, the daily-weighted average VOC content, as applied, of the coatings used each day on the subject coating unit, line, or operation, in units of kg VOC/L of coating solids (lb VOC/gal), as determined by the applicable test methods and procedures specified in **Appendix "B"** of this regulation and the procedure in paragraph (c)(4) of this Section.  
 S = VOC emission limitation in terms of kg VOC/L of coating solids (lb VOC/gal).
4. The daily-weighted average VOC content, as applied, of the coatings used on a coating unit, line, or operation in units of mass of VOC per unit volume of coating solids shall be calculated by the following equation:

$$VOC_{ws} = \frac{\sum_{i=1}^n V_i W_{voc_i} D_i}{\sum_{i=1}^n V_i VS_i}$$

where:

- $VOC_{ws}$  = The daily-weighted average VOC content, as applied, of the coatings used on a coating unit, line, or operation in units of mass of VOC per unit volume of coating solids.
- $n$  = The number of different coatings, as applied, used in a day on a coating unit, line, or operation.
- $V_i$  = The volume of each coating (i), as applied, used in a day on a coating unit, line, or operation in units of liters (L) (gallons [gal]).
- $W_{voc_i}$  = The weight fraction of VOC in each coating (i), as applied, used in a day on a coating unit, line, or operation in units of kg VOC/kg coating (lb/lb).
- $D_i$  = The density of each coating (i) as applied, used in a day on a coating unit, line, or operation in units of kg coating/L of coating (lb/gal).
- $VS_i$  = The volume fraction solids content of each coating (i), as applied, used in a day on a coating unit, line, or operation in units of L solids/L coating (gal/gal).